

# SAFETY DATA SHEET



ZAP Express Undigested Vector Kit, Part Number 239201

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Product name** : ZAP Express Undigested Vector Kit, Part Number 239201  
**Part No. (Kit)** : 239201  
**Part No.** : ZAP Express 239201-51  
Undigested Vector  
XL1-Blue MRF' E.coli Strain 200301-81  
XLOLR E. coli Strain 200304-81  
ExAssist Interference-Resistant Helper Phage 200253-81  
R408 Interference-Resistant Helper Phage 200252-81

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	
Analytical reagent.	
ZAP Express Undigested Vector	0.02 ml (20 µg 1 µg/µl)
XL1-Blue MRF' E.coli Strain	0.5 ml
XLOLR E. coli Strain	0.5 ml
ExAssist Interference-Resistant Helper Phage	1 ml (>1 x E10 pfu/ml)
R408 Interference-Resistant Helper Phage	1 ml

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG  
Hewlett-Packard-Str. 8  
76337 Waldbronn  
Germany  
0800 603 1000

**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : ZAP Express Mixture  
Undigested Vector  
XL1-Blue MRF' E.coli Strain Mixture  
XLOLR E. coli Strain Mixture  
ExAssist Interference-Resistant Helper Phage Mixture  
R408 Interference-Resistant Helper Phage Mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

**Date of issue/Date of revision** : 21/04/2017

**SECTION 2: Hazards identification**

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

**2.2 Label elements**

<b>Signal word</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	No signal word. No signal word. No signal word. No signal word. No signal word.
<b>Hazard statements</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b><u>Precautionary statements</u></b>		
<b>Prevention</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Response</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Storage</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Disposal</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

## SECTION 2: Hazards identification

<b>Hazardous ingredients</b>	: <input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain	Not applicable. Not applicable.
<b>Supplemental label elements</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Not applicable. Safety data sheet available on request. Safety data sheet available on request. Not applicable. Not applicable.
<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Special packaging requirements</b>		
<b>Tactile warning of danger</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

### 2.3 Other hazards

<b>Other hazards which do not result in classification</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	None known. None known. None known. None known. None known.
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## SECTION 3: Composition/information on ingredients

<b>3.1 Substances</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Mixture Mixture Mixture Mixture Mixture
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Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol	EC: 200-289-5 CAS: 56-81-5	≥10 - ≤25	Not classified.	[2]
Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≤3	Eye Irrit. 2, H319	[1]
XLOLR E. coli Strain Glycerol	EC: 200-289-5	≥10 - ≤25	Not classified.	[2]

### SECTION 3: Composition/information on ingredients

Sodium chloride	CAS: 56-81-5 EC: 231-598-3 CAS: 7647-14-5	≤3	Eye Irrit. 2, H319  <b>See Section 16 for the full text of the H statements declared above.</b>	[1]
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

#### Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

<b>Eye contact</b>	: ZAP Express Undigested Vector  XL1-Blue MRF' E.coli Strain  XLOLR E. coli Strain  ExAssist Interference-Resistant Helper Phage  R408 Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	: ZAP Express Undigested Vector  XL1-Blue MRF' E.coli Strain  XLOLR E. coli Strain  ExAssist Interference-Resistant Helper Phage  R408 Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	: ZAP Express Undigested Vector  XL1-Blue MRF' E.coli Strain  XLOLR E. coli Strain  ExAssist Interference-Resistant Helper Phage  R408 Interference-	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**SECTION 4: First aid measures**

<b>Ingestion</b>	Resistant Helper Phage : ZAP Express Undigested Vector  XL1-Blue MRF' E.coli Strain  XLOLR E. coli Strain  ExAssist Interference- Resistant Helper Phage  R408 Interference- Resistant Helper Phage	contaminated clothing and shoes. Get medical attention if symptoms occur.  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
<b>Protection of first-aiders</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain  ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training.  No action shall be taken involving any personal risk or without suitable training.  No action shall be taken involving any personal risk or without suitable training.  No action shall be taken involving any personal risk or without suitable training.  No action shall be taken involving any personal risk or without suitable training.

**4.2 Most important symptoms and effects, both acute and delayed**

Potential acute health effects

<b>Eye contact</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	No known significant effects or critical hazards.  No known significant effects or critical hazards.  No known significant effects or critical hazards. No known significant effects or critical hazards.  No known significant effects or critical hazards.
<b>Inhalation</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference-	No known significant effects or critical hazards.  No known significant effects or critical hazards.  No known significant effects or critical hazards. No known significant effects or critical hazards.  No known significant effects or critical hazards.

**SECTION 4: First aid measures**

	Resistant Helper Phage	
<b>Skin contact</b>	: ZAP Express Undigested Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XLOLR E. coli Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
<b>Ingestion</b>	: ZAP Express Undigested Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XLOLR E. coli Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.

Over-exposure signs/symptoms

<b>Eye contact</b>	: ZAP Express Undigested Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XLOLR E. coli Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
<b>Inhalation</b>	: ZAP Express Undigested Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XLOLR E. coli Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
<b>Skin contact</b>	: ZAP Express Undigested Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XLOLR E. coli Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
<b>Ingestion</b>	: ZAP Express Undigested Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XLOLR E. coli Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.

**4.3 Indication of any immediate medical attention and special treatment needed**

## SECTION 4: First aid measures

<b>Notes to physician</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain  ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	No specific treatment.  No specific treatment.  No specific treatment. No specific treatment. No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	Use an extinguishing agent suitable for the surrounding fire.  Use an extinguishing agent suitable for the surrounding fire.  Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.  Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	None known.  None known.  None known. None known.  None known.

### 5.2 Special hazards arising from the substance or mixture

<b>Hazards from the substance or mixture</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain  ExAssist Interference- Resistant Helper Phage R408 Interference- Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous combustion products</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain    XLOLR E. coli Strain	No specific data.  Decomposition products may include the following materials:  carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides Decomposition products may include the following materials: carbon dioxide

**SECTION 5: Firefighting measures**

carbon monoxide  
halogenated compounds  
metal oxide/oxides  
No specific data.

ExAssist Interference-Resistant Helper Phage  
R408 Interference-Resistant Helper Phage

No specific data.

**5.3 Advice for firefighters**

**Special precautions for fire-fighters**

: ZAP Express Undigested Vector  
  
XL1-Blue MRF' E.coli Strain  
  
XLOLR E. coli Strain  
  
ExAssist Interference-Resistant Helper Phage  
  
R408 Interference-Resistant Helper Phage

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters**

: ZAP Express Undigested Vector  
  
XL1-Blue MRF' E.coli Strain  
  
XLOLR E. coli Strain  
  
ExAssist Interference-Resistant Helper Phage  
  
R408 Interference-Resistant Helper Phage

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.



## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

: ZAP Express Undigested Vector	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
XL1-Blue MRF' E.coli Strain	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
XL0LR E. coli Strain	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
ExAssist Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
R408 Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

#### For emergency responders

: ZAP Express Undigested Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XL1-Blue MRF' E.coli Strain	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XL0LR E. coli Strain	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
ExAssist Interference-Resistant Helper Phage	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
R408 Interference-Resistant Helper Phage	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

: ZAP Express Undigested Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
XL1-Blue MRF' E.coli Strain	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
XL0LR E. coli Strain	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
ExAssist Interference-Resistant Helper Phage	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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R408 Interference-Resistant Helper Phage	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
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### 6.3 Methods and material for containment and cleaning up

<b>Methods for cleaning up</b> : ZAP Express Undigested Vector	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
XL1-Blue MRF' E.coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
XLOLR E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
ExAssist Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
R408 Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b> : ZAP Express Undigested Vector	Put on appropriate personal protective equipment (see Section 8).
XL1-Blue MRF' E.coli Strain	Put on appropriate personal protective equipment (see Section 8).
XLOLR E. coli Strain	Put on appropriate personal protective equipment (see Section 8).
ExAssist Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
R408 Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b> : ZAP Express Undigested Vector	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
XL1-Blue MRF' E.coli Strain	Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
XLOLR E. coli Strain	Potentially biohazardous material. Eating, drinking and

## SECTION 7: Handling and storage

ExAssist Interference-Resistant Helper Phage	smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
R408 Interference-Resistant Helper Phage	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage

ZAP Express Undigested Vector	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
XL1-Blue MRF' E.coli Strain	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
XL0LR E. coli Strain	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
ExAssist Interference-Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
R408 Interference-Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental

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contamination.

### 7.3 Specific end use(s)

<b>Recommendations</b>	: ZAP Express Undigested Vector	Industrial applications, Professional applications.
	XL1-Blue MRF' E.coli Strain	Industrial applications, Professional applications.
	XLOLR E. coli Strain	Industrial applications, Professional applications.
	ExAssist Interference-Resistant Helper Phage	Industrial applications, Professional applications.
	R408 Interference-Resistant Helper Phage	Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	: ZAP Express Undigested Vector	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	XLOLR E. coli Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist
XLOLR E. coli Strain Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

No DNELs/DMELs available.

#### PNECs

No PNECs available

### 8.2 Exposure controls

**Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

#### Individual protection measures

## SECTION 8: Exposure controls/personal protection

- Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : ZAP Express Undigested Vector Liquid.  
 XL1-Blue MRF' E.coli Strain Liquid.  
 XLOLR E. coli Strain Liquid.  
 ExAssist Interference-Resistant Helper Phage Liquid.  
 R408 Interference-Resistant Helper Phage Liquid.
- Colour** : ZAP Express Undigested Vector Not available.  
 XL1-Blue MRF' E.coli Strain Not available.  
 XLOLR E. coli Strain Not available.  
 ExAssist Interference-Resistant Helper Phage Not available.  
 R408 Interference-Resistant Helper Phage Not available.
- Odour** : ZAP Express Undigested Vector Not available.  
 XL1-Blue MRF' E.coli Strain Not available.  
 XLOLR E. coli Strain Not available.  
 ExAssist Interference-Resistant Helper Phage Not available.  
 R408 Interference-Resistant Helper Phage Not available.

**SECTION 9: Physical and chemical properties**

<b>Odour threshold</b>	:	☑ ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>pH</b>	:	☑ ZAP Express Undigested Vector	7.5
		XL1-Blue MRF' E.coli Strain	7
		XLOLR E. coli Strain	7
		ExAssist Interference-Resistant Helper Phage	7.5
		R408 Interference-Resistant Helper Phage	7.5
<b>Melting point/freezing point</b>	:	☑ ZAP Express Undigested Vector	0°C
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	0°C
		R408 Interference-Resistant Helper Phage	0°C
<b>Initial boiling point and boiling range</b>	:	☑ ZAP Express Undigested Vector	100°C
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	100°C
		R408 Interference-Resistant Helper Phage	100°C
<b>Flash point</b>	:	☑ ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Evaporation rate</b>	:	☑ ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Flammability (solid, gas)</b>	:	☑ ZAP Express Undigested Vector	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.
		XLOLR E. coli Strain	Not applicable.
		ExAssist Interference-Resistant Helper Phage	Not applicable.
		R408 Interference-Resistant Helper Phage	Not applicable.

**SECTION 9: Physical and chemical properties**

		Resistant Helper Phage	
<b>Upper/lower flammability or explosive limits</b>	:	ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Vapour pressure</b>	:	ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Vapour density</b>	:	ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	:	ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
<b>Solubility(ies)</b>	:	ZAP Express Undigested Vector	Easily soluble in the following materials: cold water and hot water.
		XL1-Blue MRF' E.coli Strain	Soluble in the following materials: cold water and hot water.
		XLOLR E. coli Strain	Soluble in the following materials: cold water and hot water.
		ExAssist Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
		R408 Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	:	ZAP Express Undigested Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		R408 Interference-Resistant Helper Phage	Not available.

## SECTION 9: Physical and chemical properties

<b>Auto-ignition temperature</b>	: ZAP Express	Not available.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Decomposition temperature</b>	: ZAP Express	Not available.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Viscosity</b>	: ZAP Express	Not available.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Explosive properties</b>	: ZAP Express	Not available.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Oxidising properties</b>	: ZAP Express	Not available.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	R408 Interference-Resistant Helper Phage	Not available.

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	: ZAP Express	No specific test data related to reactivity available for this product or its ingredients.
	Undigested Vector	
	XL1-Blue MRF' E.coli Strain	No specific test data related to reactivity available for this product or its ingredients.
	XLOLR E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
	ExAssist Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
	R408 Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.



## SECTION 10: Stability and reactivity

<b>10.2 Chemical stability</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain  ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>10.5 Incompatible materials</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
<b>10.6 Hazardous decomposition products</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain  ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**SECTION 11: Toxicological information**

Product/ingredient name	Result	Species	Dose	Exposure
<input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>XLOLR E. coli Strain</b> Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

Acute toxicity estimates

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>XLOLR E. coli Strain</b> Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitiser

**Conclusion/Summary** : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

**Information on likely routes of exposure**

ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain : Not available.  
 Routes of entry anticipated: Oral, Dermal, Inhalation.  
 XLOLR E. coli Strain : Routes of entry anticipated: Oral, Dermal, Inhalation.  
 ExAssist Interference-Resistant Helper Phage : Not available.  
 R408 Interference-Resistant Helper Phage : Not available.

Potential acute health effects

**Inhalation** :  ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain : No known significant effects or critical hazards.  
 XLOLR E. coli Strain : No known significant effects or critical hazards.  
 ExAssist Interference-Resistant Helper Phage : No known significant effects or critical hazards.  
 R408 Interference-Resistant Helper Phage : No known significant effects or critical hazards.

**SECTION 11: Toxicological information**

<b>Ingestion</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Eye contact</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Eye contact</b>	: ZAP Express Undigested Vector XL1-Blue MRF' E.coli Strain XLOLR E. coli Strain ExAssist Interference-Resistant Helper Phage	No specific data. No specific data. No specific data. No specific data.

**SECTION 11: Toxicological information**

R408 Interference-Resistant Helper Phage No specific data.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Short term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Long term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Potential chronic health effects**

<b>General</b>	:	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ZAP Express Undigested Vector</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>XLOLR E. coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>R408 Interference-Resistant Helper Phage</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Carcinogenicity</b>	:	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ZAP Express Undigested Vector</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>XLOLR E. coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>R408 Interference-Resistant Helper Phage</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Mutagenicity</b>	:	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ZAP Express Undigested Vector</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>XLOLR E. coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>R408 Interference-Resistant Helper Phage</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Teratogenicity</b>	:	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ZAP Express Undigested Vector</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>XLOLR E. coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>R408 Interference-Resistant Helper Phage</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Developmental effects</b>	:	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ZAP Express Undigested Vector</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>XLOLR E. coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>R408 Interference-Resistant Helper Phage</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>

## SECTION 11: Toxicological information

<b>Fertility effects</b>	: <input checked="" type="checkbox"/> ZAP Express Undigested Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm3 Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks
XL0LR E. coli Strain Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm3 Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

### 12.2 Persistence and degradability

Not available.

### 12.3 Bioaccumulative potential

Not available.

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

## SECTION 12: Ecological information

### 12.5 Results of PBT and vPvB assessment

**PBT** : Not applicable.  
**vPvB** : Not applicable.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

### Regulatory information

**ADR/RID / IMDG / IATA** : Not regulated.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU Regulation (EC) No. 1907/2006 (REACH)

#### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

##### Substances of very high concern

None of the components are listed.

<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	<b>ZAP Express Undigested Vector</b>	Not applicable.
	<b>XL1-Blue MRF<sup>+</sup> E.coli Strain</b>	Not applicable.
	<b>XL0LR E. coli Strain</b>	Not applicable.
	<b>ExAssist Interference-Resistant Helper Phage</b>	Not applicable.
	<b>R408 Interference-Resistant Helper Phage</b>	Not applicable.

#### Other EU regulations

**Europe inventory** : All components are listed or exempted.

**Date of issue/Date of revision** : 21/04/2017

## SECTION 15: Regulatory information

### Ozone depleting substances (1005/2009/EU)

Not listed.

### Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

### Seveso Directive

This product is not controlled under the Seveso Directive.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)


Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.


### International lists

#### National inventory

<b>Australia</b>	: All components are listed or exempted.
<b>Canada</b>	: Not determined.
<b>China</b>	: All components are listed or exempted.
<b>Japan</b>	:  <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : All components are listed or exempted.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: All components are listed or exempted.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are listed or exempted.

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

## SECTION 16: Other information

 Indicates information that has changed from previously issued version.

<b>Abbreviations and acronyms</b>	: ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement PNEC = Predicted No Effect Concentration RRN = REACH Registration Number
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### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

### Full text of abbreviated H statements

**Date of issue/Date of revision** : 21/04/2017

**SECTION 16: Other information**

<p><input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> H319</p>	<p>Causes serious eye irritation.</p>
<p><b>XL0LR E. coli Strain</b> H319</p>	<p>Causes serious eye irritation.</p>

[Full text of classifications \[CLP/GHS\]](#)

<p><input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> Eye Irrit. 2, H319</p>	<p>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2</p>
<p><b>XL0LR E. coli Strain</b> Eye Irrit. 2, H319</p>	<p>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2</p>

**Date of issue/ Date of revision** : 21/04/2017

**Date of previous issue** : 24/12/2015.

**Version** : 2

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